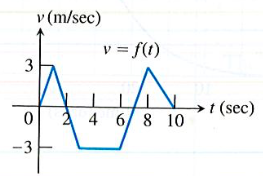
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| Mr. Michael T. Davis  Calculus | | Section 3.4 Quiz  January 13, 2017 | |
| Name: | |

1. Particle Motion. The accompanying figure shows the velocity  of a particle moving on a coordinate line.
2. When does the particle move forward? Justify your answer.
3. When does the particle speed up? Justify your answer.
4. When is the particle’s acceleration negative? Justify your answer.
5. When is the particle’s acceleration zero? Justify your answer.
6. When is the particle’s velocity a constant? Justify your answer.
7. Projectile Motion. A rocket propelled vertically upward from the surface of the Earth at an initial velocity of  reaches a height of  meters in t seconds.
8. Find the rock’s velocity as a function of time.
9. Find the rocket’s acceleration as a function of time.
10. What is the rocket’s velocity and acceleration at time ?
11. How long did it take the rocket to reach its highest point? Justify your answer.
12. How high did the rocket go?
13. Particle Motion. A particle moves along a real number line (left and right) so that its position at any time  is given by the function  where s is measured in meters and t is measured in seconds. Positive velocity implies movement to the right.
14. Determine the particles displacement from  and .
15. Determine the average velocity from  and .
16. Find the instantaneous velocity at any time t.
17. At what time(s) does the particle change direction? Justify your answer.
18. Is the particle moving forward or backward at time ? Justify your answer.
19. What is the particle’s position when it is the farthest to the left? Justify your answer?